

TD62006P, TD62006F

6CH DARLINGTON SINK DRIVER

The TD62006P, TD62006F Series are high-voltage, high-current darlington drivers comprised of six NPN darlington pairs.

All units feature integral clamp diodes for switching inductive loads and protective diodes against a negative input voltage.

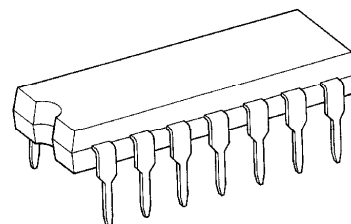
The TD62006P, TD62006F are suitable for interfaces from minus and plus dual supply voltage system to plus single supply voltage system.

Applications include relay, hammer, lamp and display (LED) drivers.

FEATURES

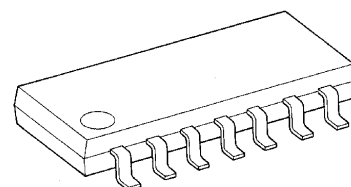
- Output current (single output) : 150mA (Max.)
- High sustaining voltage output : 22V (Min.)
- Output clamp diodes
- Protective diodes against a negative input voltage
- Inputs base resistor : $R_{IN} = 20k\Omega$
- Inputs compatible with 9~15V PMOS, CMOS.
- Package type-P : DIP-14pin
- Package type-F : SOP-14pin

TD62006P



DIP14-P-300-2.54

TD62006F

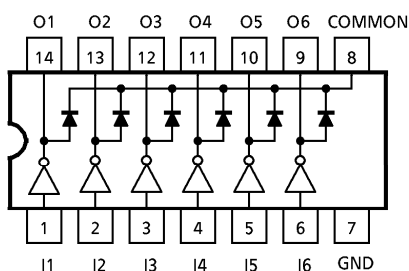


SOP14-P-225-1.27

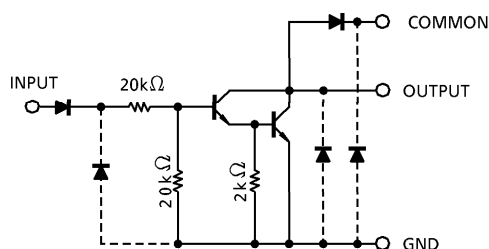
Weight

DIP14-P-300-2.54 : 1.11g (Typ.)
SOP14-P-225-1.27 : 0.16g (Typ.)

PIN CONNECTION (TOP VIEW)



SCHEMATICS (EACH DRIVER)



(Note) The input and output parasitic diodes cannot be used as clamp diodes.

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- The information contained herein is subject to change without notice.

MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC | | SYMBOL | RATING | UNIT |
|-----------------------------|---|-----------------------|--------------|---------|
| Output Sustaining Voltage | | V _{CE (SUS)} | − 0.5~22 | V |
| Output Current | | I _{OUT} | 150 | mA / ch |
| Input Voltage | | V _{IN} | − 37~22 | V |
| Clamp Diode Reverse Voltage | | V _R | 22 | V |
| Clamp Diode Forward Current | | I _F | 150 | mA |
| Power Dissipation | P | P _D | 1.0 | W |
| | F | | 0.625 (Note) | |
| Operating Temperature | P | T _{opr} | − 30~75 | °C |
| | F | | − 40~85 | |
| Storage Temperature | | T _{stg} | − 50~150 | °C |

(Note) On Glass Epoxy PCB (50×50×1.6mm Cu 30%)

RECOMMENDED OPERATING CONDITIONS (Ta = − 40~85°C and Ta = − 30~75°C for Type-P)

| CHARACTERISTIC | | SYMBOL | CONDITION | MIN. | TYP. | MAX. | UNIT |
|-----------------------------|---|-----------------------|--|------|------|-------|---------|
| Output Sustaining Voltage | | V _{CE (SUS)} | | 0 | — | 20 | V |
| Output Current | | I _{OUT} | 1 Circuit | 0 | — | 120 | mA / ch |
| | | | T _{pw} = 25ms, Duty = 10%, 6 Circuits | 0 | — | 100 | |
| Input Voltage | | V _{IN} | | − 35 | — | 20 | V |
| Clamp Diode Reverse Voltage | | V _R | | — | — | 20 | V |
| Clamp Diode Forward Current | | I _F | | — | — | 120 | mA |
| Power Dissipation | P | P _D | | — | — | 0.44 | W |
| | F | | (Note) | — | — | 0.325 | |

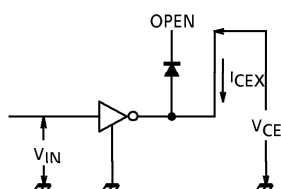
(Note) On Glass Epoxy PCB (50×50×1.6mm Cu 30%)

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

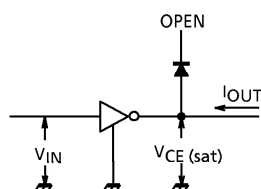
| CHARACTERISTIC | | SYMBOL | TEST CIR-CUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|--------------------------------------|-----------|-----------------------|---------------|--|------|------|------|------|
| Output Leakage Current | P | I _{CEX} | 1 | V _{OUT} = 20V V _{IN} = 1.0V | — | — | 100 | μA |
| | F | | | | | | | |
| Collector-Emitter Saturation Voltage | | V _{CE (sat)} | 2 | V _{IN} = 7.5V, I _{OUT} = 120mA | — | — | 1.6 | V |
| DC Current Transfer Ratio | | h _{FE} | 3 | V _{CE} = 2.0V, I _{OUT} = 120mA | 800 | — | — | mA |
| Input Current | "H" Level | I _{IN (ON)} | 4 | V _{IN} = 7.5V | — | — | 0.7 | μA |
| | "L" Level | I _{IN (OFF)} | | V _{IN} = − 35V | — | — | − 10 | |
| Input Voltage | "H" Level | V _{IN (ON)} | 5 | I _{OUT} = 120mA | — | — | 7.5 | V |
| | "L" Level | V _{IN (OFF)} | | | 1 | — | — | |
| Clamp Diode Reverse Current | | I _R | 6 | V _R = 20V | — | — | 30 | μA |
| Clamp Diode Forward Voltage | | V _F | 7 | I _F = 120mA | — | — | 1.6 | V |
| Turn-On Delay | | t _{ON} | 8 | V _{OUT} = 20V, R _L = 167Ω C _L = 15pF | — | 0.1 | — | μs |
| Turn-Off Delay | | t _{OFF} | | | — | 0.4 | — | |

TEST CIRCUIT

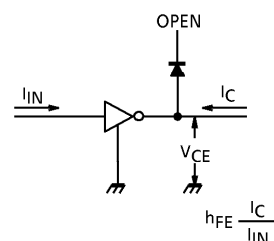
1. I_{CEX}



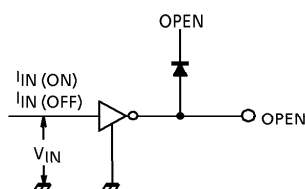
2. $V_{CE(sat)}$



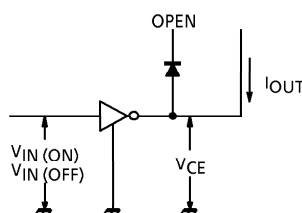
3. h_{FE}



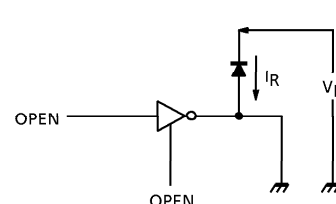
4. $I_{IN(ON)}, I_{IN(OFF)}$



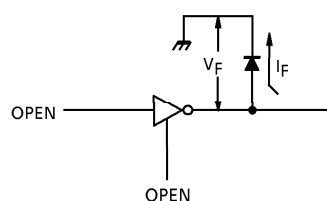
5. $V_{IN(ON)}, V_{IN(OFF)}$



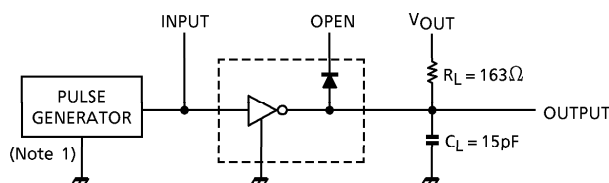
6. I_R



7. V_F

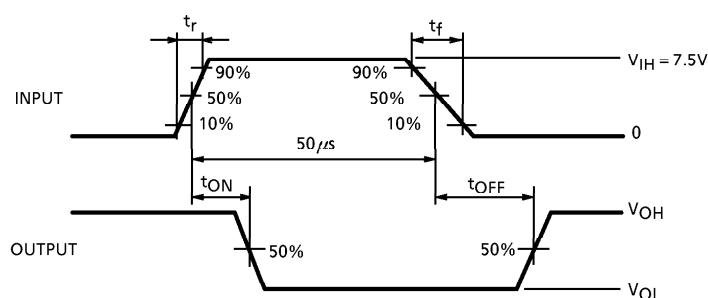


8. t_{ON}, t_{OFF}



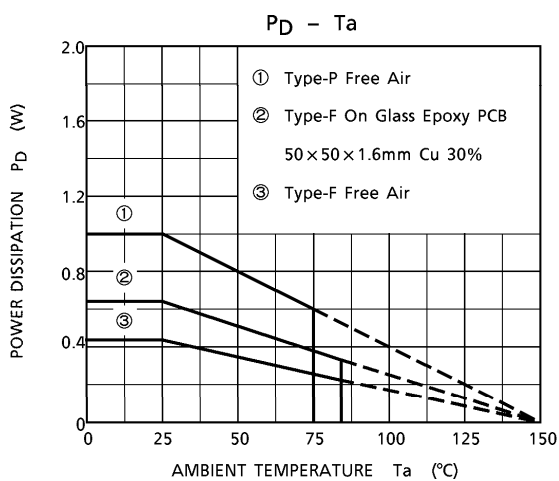
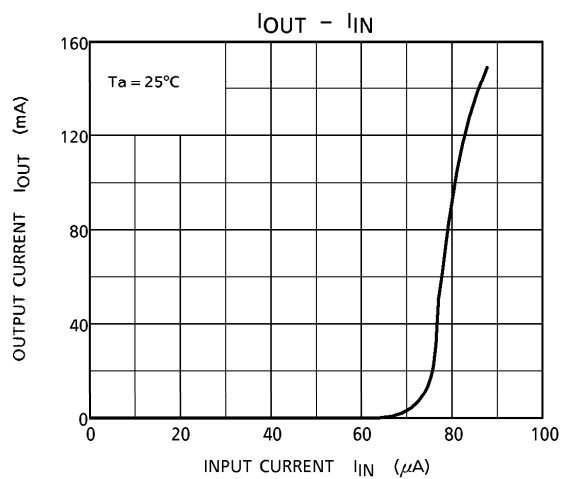
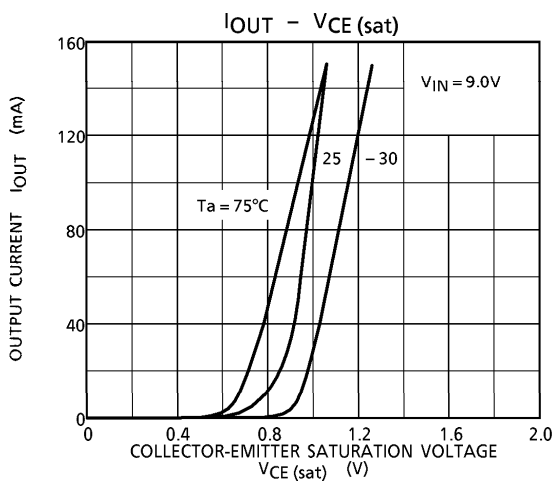
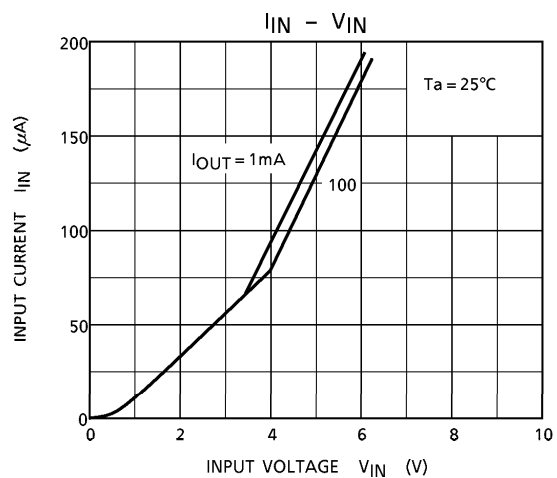
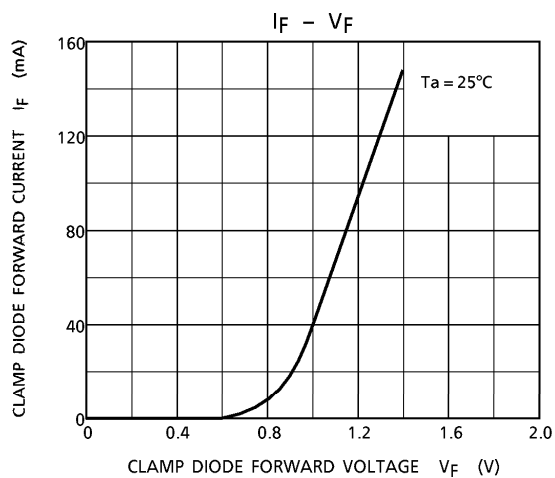
PRECAUTIONS for USING

Utmost care is necessary in the design of the output line, COMMON and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.



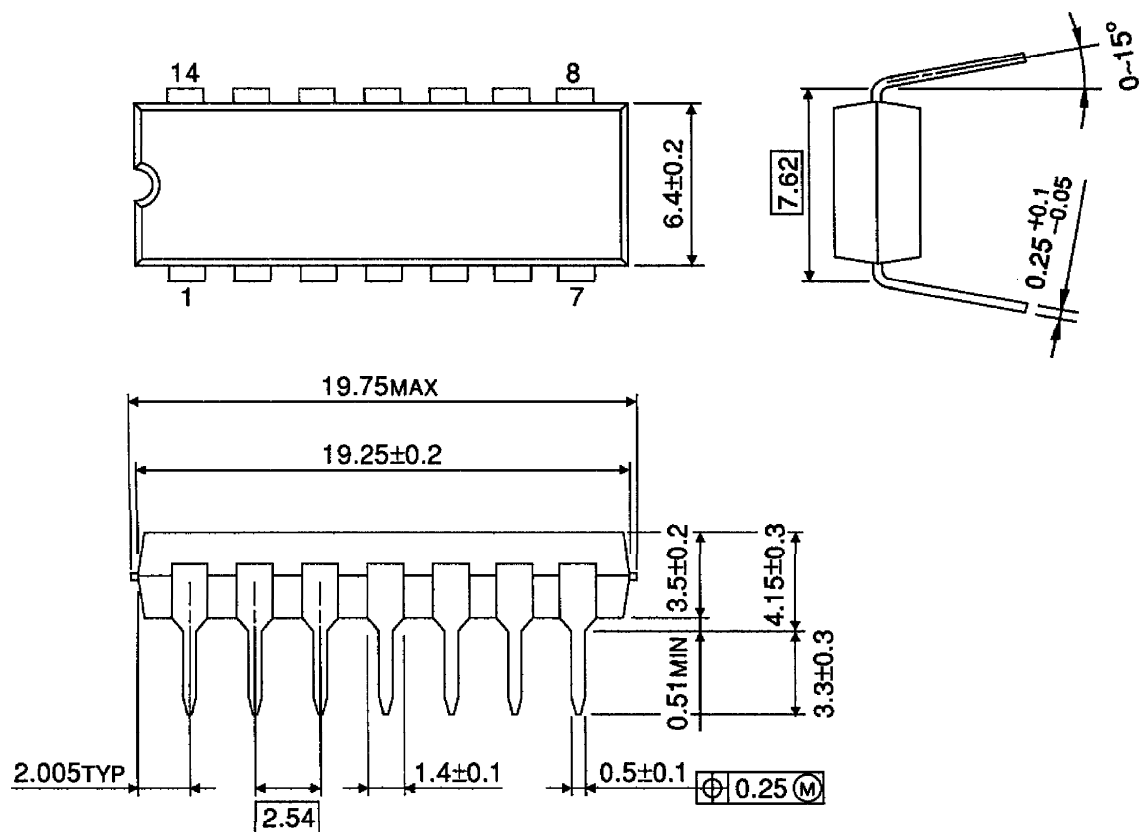
(Note 1) Pulse Width $50\mu s$, Duty Cycle 10%
Output Impedance 50Ω , $t_r \leq 5ns$,
 $t_f \leq 10ns$

(Note 2) C_L includes probe and jig capacitance.



OUTLINE DRAWING
DIP14-P-300-2.54

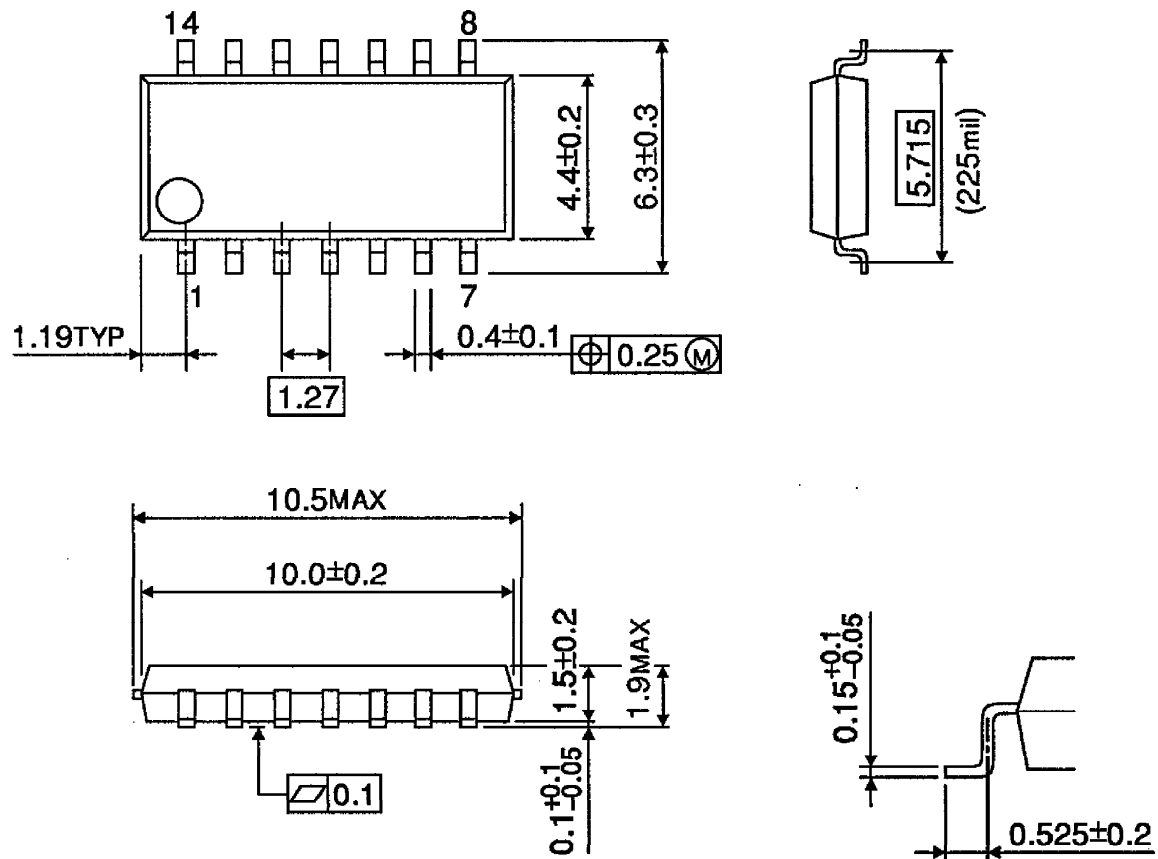
Unit : mm



Weight : 1.11g (Typ.)

OUTLINE DRAWING
SOP14-P-225-1.27

Unit : mm



Weight : 0.16g (Typ.)